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**Abstract Title:**

Participatory yield assessment of climbing and bush bean varieties under different management options in Malawi

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**Abstract Text:**

Common bean is a major component in cereal-legume cropping systems in high elevation areas of Malawi. However, due to poor agronomic practices used by the majority of farmers, yields are a paltry 0.5 Mg ha-1, compared to attainable yields of 2 Mg ha-1. The objective of this study was to investigate the effect of different management options (manure and fertilizer use, intercropping, staking options) on the yield of climbing and bush beans grown under on-farm conditions. Farmer-managed mother trials were set up in Kandeu and Linthipe, central Malawi, during the 2013/14 cropping season. The trials were laid out in split-plot design replicated three times, with bean varieties as main plots and management options as sub plots. Beans were planted as either sole or intercropped with maize, and fertilized with manure only, fertilizer or a combination of manure and fertilizer. Either stick stakes or pigeonpea as live stakes were used. Participatory technology selection was conducted to capture farmer preferences across gender groups and compare farmer selections with agronomic results. Bean varieties responded differently to management options (p<0.001) in both climbing and bush beans. The management option of using stick stakes and manure produced the highest mean yield of 1.96 Mg ha-1 whereas an option of using pigeon pea as live stakes produced the least (0.74 Mg ha-1). There was a significant interaction between varieties and management options (p<0.05). MBC 33 produced the highest mean yield 2.56 Mg ha-1) when manure and stick stakes were used, whereas DC86-263 consistently yielded largest when NPK fertilizer was added. Also, MBC 33 produced largest yields (1.89 Mg ha-1) under sole cropping (p=0.025). In bush bean, SER 83 was responsive to management options which had a component of manure. Overall farmer selection pattern favoured intercropping to sole cropping. Further studies are being done to evaluate system productivity in terms of land equivalent ratio, relative yield total, and nutrient output per unit land area.

Key words: Cereal-legume cropping systems, climbing bean, management options, Africa RISING.